

**REMARKS**

Claims 1-2, 4-7, 10-11, 13-16 and 24 are pending in the application.

No new matter was added.

For at least the reasons set forth below, withdrawal of all outstanding rejections is respectfully requested.

Claims 1-2, 4-7, 10-11, 13-16 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Eberlein et al. (U.S. Patent No. 6,314,289 B1) in view of Calderband et al. (U.S. Patent 6,115,427) previously cited. Applicants respectfully traverse the rejection.

Claim 1 recites (underlining added for emphasis):

A communications system, comprising:  
a channel encoder for encoding a plurality of information bits;  
a mapping unit coupled to the channel encoder for mapping the plurality of information bits into a first set of quadrature phase shift keying (QPSK) symbols and a second set of QPSK symbols,  
wherein every successive predetermined number of information bits are mapped to a first QPSK symbol and a second QPSK symbol in one symbol period in accordance with a mapping table, and the predetermined number of information bits is three;  
a first modulation unit coupled to the mapping unit for converting the first QPSK symbol into a first QPSK constellation symbol; and  
a second modulation coupled to the mapping unit for converting the second QPSK symbol into a second QPSK constellation symbol.

In contrast, Eberlein does not teach or suggest the present invention as recited by claim 1. For example, Eberlein does not teach or suggest using three as a predetermined number of information bits and coding the information bits in one symbol period. The Examiner does cite where Eberlein describes using three information bits, but not coding the three information bits onto one symbol period. On the contrary, if Eberlein were to map three information bits, eight symbol periods would be necessary (See figures 3 and 4 in Eberlein). Therefore, claim 1 is patentable over Eberlein.

In addition, Calderband does not teach or suggest the shortcomings of Eberlein. For example, Calderband does not teach or suggest using three information bits as recited by claim 1.

On the contrary, Calderband also teaches away from the invention in that Calderband teaches that each information bit is coded in a symbol, and thus three information bits would take three codes and three symbols (col. 7, lines 10-17). Consequently, Calderband does not teach or suggest the present invention as recited by claim 1.

Moreover, claims 2, and 4-7 are dependent on claim 1, and are therefore patentable over Eberlein in view of Calderband for at least the same reasons as claim 1.

Claim 10 recites (underlining added for emphasis):

A method of enhancing transmission rate in a wireless communication system, comprising:  
providing a plurality of information bits; and  
mapping the plurality of information bits into a first set of quadrature phase shift keying (QPSK) symbols and a second set of QPSK symbols, wherein every successive predetermined number of information bits are mapped to a first QPSK symbol and a second QPSK symbol in one symbol period in accordance with a mapping table, and the predetermined number of information bits is three.

In contrast, Eberlein does not teach or suggest the present invention as recited by claim 10. For example, as recited earlier, Eberlein does not teach or suggest using three as a predetermined number of information bits and coding the information bits within one symbol period. Again, the Examiner does cite where Eberlein described utilizing three information bits, but not encoding three information bits within one symbol period. Indeed, as stated earlier, if Eberlein were to map three information bits, eight symbol periods would be necessary (See figures 3 and 4 in Eberlein). Accordingly, claim 10 is patentable over Eberlein.

Further, Calderband does not teach or suggest the shortcomings of Eberlein. For example, as recited earlier, Calderband does not teach or suggest using three information bits as recited by claim 10. Again, Calderband also teaches away from the invention in that Calderband teaches that each information bit is coded in a symbol, and thus three information bits would take three codes and three symbols (col. 7, lines 10-17). Thus, Calderband does not teach or suggest the present invention as recited by claim 10.

In addition, claims 11, 13-16 and 24 are dependent on claim 10, and are thus patentable over Eberlein in view of Calderband for at least the same reasons as claim 10.

**Conclusion**

Insofar as the Examiner's rejections were fully addressed, the present application is in condition for allowance. Issuance of a Notice of Allowability of all pending claims is therefore requested.

Respectfully submitted,

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